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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,997	08/12/2002	Takao Taniguchi	AW-C216	9038
7590 06/21/2005			EXAMINER	
Lorusso & Loud 3137 Mount Vernone Avenue Alexandria, VA 22305			SHAKERI, HADI	
			ART UNIT	PAPER NUMBER
			3723	
DATE MAILED: 06/21/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/088,997

Applicant(s)

TANIGUCHI ET AL.

Examiner

Hadi Shakeri

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 25,27-29 and 31-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25,27-29 and 31-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/25/05 has been entered.

### ***Claim Objections***

2. Claims 27 and 43 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Regarding claim 27, it is unclear how the nature of apparatus is being properly claimed (as argued) in the method claim of claim 27.

Regarding claim 43, the language as written renders the claim objectionable, because of improper dependency, since it is unclear whether the claim is dependent or independent. If the claim is independent, i.e., "a gear (an article claim" the reference to "claim 25", renders it improper, if the claim is a dependent claim, then it fails to further limit the parent claim, i.e. "method of finishing a tooth surface".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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3. Claim 45 is rejected under 35 U.S.C. 102(b) as being anticipated by Hosoya.

Hosoya discloses all of the limitations of claim 45, i.e., a device for finish machining tooth surfaces of a gear comprising a first rotary shaft (11) which rotatably supports the gear (12) to be machined thereon, a second rotary shaft (14) which rotatably supports thereon a counter gear (13) for meshing with the gear to be machined; water supply means for supplying working liquid (06:13) to meshing portions of the tooth surfaces of the gear to be machined and the counter gear; and means (prime mover) for rotating the gear to be machined and the counter gear while supplying the water or aqueous solution to the meshing portions. Note that the type working liquid supplied through working liquid supplier does not further limit the apparatus itself, the working liquid supplier is capable of supplying water or an aqueous solution, and further the narrative and/or functional language "counter gear producing..." fails to limit the apparatus.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

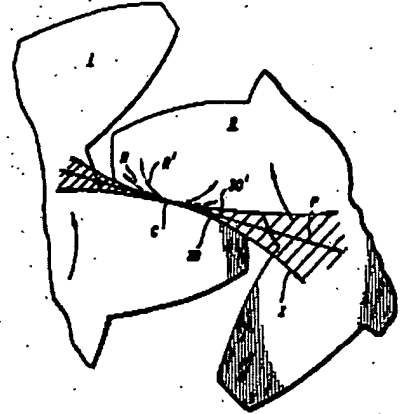
4. Claim 43 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hosoya (US 4,920,703).

Regarding claim 43, Hosoya meets all the limitations, however it is also noted that product-by-process claims are not limited to the manipulations of the process steps, only the structure implied by the steps, thus a device produced by the method of prior art, would meet all the structural limitations, i.e., a gear produced with desired properties. (See MPEP 2113 [R-1]).

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5. Claims 25-29, 31-38 and 43 are rejected under 35 U.S.C. 103(a) as obvious over Hosoya (US 4,920,703) in view Praeg et al. (2,942,389).

Hosoya discloses all the limitations of claim 25, i.e., meshing a workpiece gear with an actual master gear while supplying non abrasive aqueous solution, wherein the parallel axes of the gears are rocked in any desired directions producing a surface roughness of 1.5 micron. Regarding the steps of oxidizing the surface, it is noted that oxidation would naturally follow form machining oil having aqueous base which are usually used in the art, however, Hosoya does not disclose using water based lubricant or working liquid Praeg et al. teaches using water base coolant or water (06:01-03). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Hosoya with using water for the working liquid as taught by Praeg et al. as an inexpensive choice in lessening the operation costs.



Regarding 26, 27, 31-33 and 35-37, Hosoya meets the limitations.

Regarding claim 43, Hosoya in view of Praeg et al. meets all the limitations, however it is also noted that product-by-process claims are not limited to the manipulations of the process steps, only the structure implied by the steps, thus a device produced by the method of prior art, would meet all the structural limitations, i.e., a gear produced with desired properties. (See MPEP 2113 [R-1]).

Regarding claims 28, 29, 34 and 35, Hosoya in view of Praeg et al. meets all the limitations of the above claims, except for disclosing applied meshing pressure; desired finish; number of revolution per minute and duration of meshing; and gears having perpendicular axes.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a pressure of 5 Mpa; use relatively longer time or higher speed (which would mesh the teeth over 10,000) based on the desired finishing parameters and/or type of workpiece material; or apply the invention to gears having right angle axes, since it has been held that changing shape, dependent on work-piece parameters, involves only routine skill in the art. *In re Stevens*, 101 US PQ 284(CCPA1954).

6. Claims 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoya in view of Praeg et al. further in view of McGlasson et al. (US 6,217,421).

Hosoya as modified by Praeg et al. meets all the limitations of the above claims, except for disclosing measuring the vibration noise level and stopping the machining when certain noise and/or vibration level is reached.

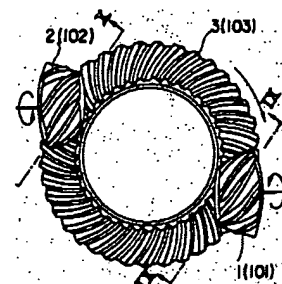
McGlasson et al. teaches method and apparatus for machining gears with vibration or noise measurement and monitoring means to stop the operation when desired level are reached. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to further modify the modified invention of Hosoya in view of Praeg et al. with the measurement and monitoring means as taught by McGlasson et al. to obtain a higher and more consistent quality of finished workpieces as well as the shortest cycle time.

7. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoya in view of Praeg et al. further in view of Takahashi et al. (US 3,813,821).

Hosoya as modified by Praeg et al. meets all the limitations of claim 44, except for disclosing the first and second machining gears.

Takahashi et al. teaches gear finishing method and apparatus

containing a pair of machining gears. It would have been obvious to one of ordinary skill in the



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art, at the time the invention was made, to further modify the modified invention of Hosoya in view of Praeg et al. with the system as taught by Takahashi et al. to adapt the invention for grinding hypoid gears.

8. Claims 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoya and/or Hosoya in view of Praeg et al. further in view of Miyauch (US 5,347,760).

Hosoya or Hosoya as modified by Praeg et al. meets all the limitations of the above claims, except for disclosing a lubricant recovery system. Miyauch teaches method and apparatus for machining gears with oil recovery system. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to further modify the modified invention of Hosoya in view of Praeg et al. with the coolant recovery system as taught by Miyauch to recover and reuse the oil in lowering operational cost.

### ***Response to Arguments***

9. Applicant's arguments filed 04/29/05 have been fully considered but they are not persuasive.

10. The argument that the Examiner fails to understand the Applicant's argument, regarding non-ferrous metal and the step of oxidation, is not persuasive, since it fails to point out what claim limitations and/or step is not met by the reference applied. A method of finish machining tooth surfaces by meshing the gear with a counter gear is met. The second step recites, "oxidizing the tooth surfaces by supplying, without abrasive grain, water or...onto meshing tooth surfaces of gears, said aqueous solution...". This is met by Hosoya as modified by Praeg et al., i.e., supplying water to the meshing surfaces. Applicant argues that if non-ferrous material is being used then there would be not oxidation, the same holds true for the claims as recited, i.e., how is the step of "oxidizing the tooth surfaces by supplying, without abrasive grains, water..." is

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enabled? What limitations or language in the claim, defines oxidation except for act of supplying water to the surfaces? It appears Applicant is arguing features not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With regards to inclusion of claims 49 and 50 into the independent claims, it is noted that the narrative and/or functional language does not further limit and/or adds steps to the method claims.

The arguments regarding that no claim limitations should be ignored, it is only noted that no limitations are ignored, only that the language as indicated fails to further limit the claim.

The argument regarding "product-by-process" claim is not persuasive. (See MPEP 2113 [R-1]).

The argument that modifying Hosoya with Praeg et al. would change the principle of Hosoya is not persuasive. Hosoya discloses the use of working liquid without abrasive and the teaching from Praeg et al. is to use water as an inexpensive means of working fluid. The argument that this would change a mechanical process to a chemical/mechanical process is not relevant.

With respect to *prima facie* case argument for claims 32-35 that no references were used, it is noted that changing shapes based on workpiece and/or operational parameter, is considered to be within the knowledge of one of ordinary skill in the art. That is changing the shape of the apparatus, e.g., for an application or workpiece parameters as shown by e.g., McGlasson et al.

The argument regarding claim 30 is not persuasive either. The claim recited using water or a solution having... and as such the use of water meets the claim.



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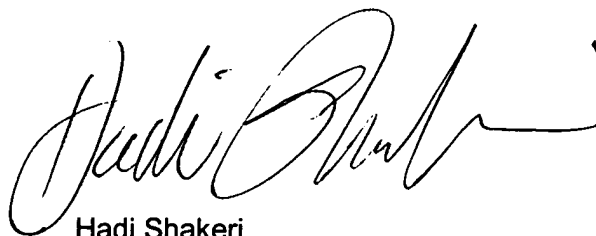
The argument regarding claim 48 is not persuasive, since rocking motion would change a position of contact of the meshing portions.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is (571) 272-4495. The examiner can normally be reached on Monday-Friday.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Hadi Shakeri', with a stylized flourish at the end.

Hadi Shakeri  
Primary Examiner  
Art Unit 3723  
June 17, 2005